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| APPLICATION NO.                                                                                                                        | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/609,278                                                                                                                             | 06/27/2003  | Frederick A. Perner  | 200205502-1         | 8302             |
| 22879                                                                                                                                  | 7590        | 12/15/2004           | EXAMINER            |                  |
| HEWLETT PACKARD COMPANY<br>P O BOX 272400, 3404 E. HARMONY ROAD<br>INTELLECTUAL PROPERTY ADMINISTRATION<br>FORT COLLINS, CO 80527-2400 |             |                      | LAM, DAVID          |                  |
|                                                                                                                                        |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                                                                        |             |                      | 2818                |                  |

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                      |  |
|------------------------------|------------------------|--|----------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b>  |  |
|                              | 10/609,278             |  | PERNER, FREDERICK A. |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>      |  |
|                              | David Lam              |  | 2818                 |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17, 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 18 and 23 is/are rejected.
- 7) ☒ Claim(s) 19-22 and 24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                       |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____                                                |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: *reference number 123 on Figure 2A*. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18, 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (6,813,208) in view of Hidaka (6,587,371).

Art Unit: 2818

Regarding to claims 18, 23, Baker discloses a memory system comprising: a processor (602); a memory assessable to the processor; an array of memory cells (100) configured to accept a bias voltage (VA) for a selected memory cell along a first line and to provide a read voltage (SV) across the sneak resistance (RSN) of the array of cells to a read logic (200 or 300) along second line. *See Figs. 1-3, 5-6; Cols. 1-14.*

As per above discussion, Baker discloses the claimed invention but not explicitly discloses on magnetic tunnel junction cells (MTJ).

Hidaka discloses a magnetic random access memory (MRAM) device comprising magnetic tunnel junction cells (MTJ). *See Fig. 2.*

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Baker's MRAM by utilizing Hidaka's teaching to includes magnetic tunnel junction cells (MJT) to maintained constant data read margin during data reading operation.

#### ***Allowable Subject Matter***

4. Claims 19-22, 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach the above noted device and further comprises a biasing circuit configured to provide the bias voltage to the selected memory cell at least twice with different voltage values.

Art Unit: 2818

5. The following is an examiner's statement of reasons for allowance: Claims 1-17, 28-29 are allowable over the prior art of record because none of the prior art whether taken singularly or in combination, especially when these limitations are considered within the specific combination claimed, to teach: a memory system comprising: a processing element, among others as claimed in independent claim 12, configured to compare a function of at least two of first/second bias voltage, the first/second induced voltage to a threshold voltage; a read logic, among others as claimed in independent claim 28, configured to receive read voltage across the selected memory cell for each of the difference voltage values. Method for determining a logic state of the MTJ comprising step of comparing a function of two or more of the first/second bias voltage, the first/second induced voltage to a threshold voltage value, and among other steps as claimed in independent claim 1.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lam whose telephone number is 571-272-1782. The examiner can normally be reached on 6:00 – 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 2818

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**D. Lam**

December 7, 2004

A handwritten signature in black ink, appearing to read 'DAVID LAM', with a stylized flourish at the end.

**DAVID LAM**  
**PRIMARY EXAMINER**